SUMMER HIRES

Proposed Project Descriptions

DRINKING WATER PROTECTION BRANCH

Infrastructure Branch
Project #1: Analysis of State DWSRF Program Data

Contact: Peter Shanaghan

Project Description:

The national DWSRF program is composed of 51 separate DWSRF's (one for each State plus Puerto Rico). Each of these DWSRF's is different. The Drinking Water National Information Management System (DWNIMS) contains over 400 data elements for each State program for each Federal Fiscal Year. That's now 2800 data elements per State! The intern assigned to this project would assist the DWSRF Team in analyzing this enormous database. The objective of the project would be to develop descriptive statistics characterizing the 51 DWSRF's. Such statistics will assist the DWSRF Team in assessing State program performance and Regional oversight effectiveness. The statistics, and the analysis producing them, will also provide insights into potential measures of program efficiency and success.

Prevention Branch

Project Proposal: UIC Outreach Compendium

Contact: Robyn Delehanty

Product: Develop a CDROM of consolidated UIC outreach text and graphics, categorized and cross-referenced.

Task Description:

The UIC Program, both at HQ and the Regions, has developed a variety of outreach materials that describe the UIC Program, compliance, SDWA mandate, regulatory structure and requirements, public health protection, etc. This task would involve:

- Collect all EPA developed UIC outreach materials
- Scan any documents that are not in electronic format
- Create a matrix of text by topic, such as Need for UIC Program, SDWA mandate, History of the program, Case Studies

- Working with the UIC staff, ensure that all text is consistent and accurate
- Create a “library” of graphics
- Create and distribute CDROM’s to Regional and HQ UIC Staff.

Project: Assist with Data Collection for LCR Compliance and Rule Review

The AA has committed to Congress that EPA would review compliance and implementation of the LCR. This review may lead to potential regulatory changes to the rule. In order to perform analysis, a significant amount of data will need to be collected and analyzed.

Specific Task:
The summer intern would:
- compile and catalogue hardcopy data submitted by regions, states and systems
- help prepare briefing materials
- take notes at meetings

Protection Branch
Project Proposal: Create Source Water Data Base

Contact: Sylvia Malm

Task Description:
The intern would work with the Prevention Branch's State and Local Assistance Team on several of the team's 2004 projects to develop a source water protection online, searchable database. These projects include
- drafting and formatting source water protection case studies for the Internet,
- searching for and compiling state SWP templates or guidelines and other (non-EPA) federal agency source water materials,
- compiling regional and state SWP strategies,
- keywording documents for the database,
- obtaining information on source water projects supported by tribal PWSS funds since 1998, and
- other related work.

Project: Update Consumer Factsheets for Inorganic and Organic Contaminants

Update fact sheets on the EPA website (http://www.epa.gov/safewater/hfacts.html) for chemical contaminants contain outdated/incorrect information.

Specific Task:
The summer intern would:

- work with subject matter experts in OST to update the health effects language
- conduct internet literature review to update other applicable portions (i.e. sources of contaminants, what they're used for, etc)
- verify MCL and MCLGs with tables in the CFR
- format the factsheets in a consistent format
- work with the outreach team to get the revised fact sheets posted on the web

Standards and Risk Management Division

Standards and Risk Reduction Branch

Project: Atrazine Occurrence and Monitoring

Atrazine is one of the most widely used herbicides in the US. It is currently regulated in drinking water because of concerns about its carcinogenicity. New data suggest other health endpoints of concern. EPA's Office of Pesticides Programs recently approved atrazine's re-registration, with a requirement for monitoring approximately 130 vulnerable drinking water sources. Monitoring data for 2003 are now available for analysis.

As a member of our Atrazine Team, the intern will assist in the analysis of the 2003 re-registration data and other occurrence data as they become available. Specific activities may include some or all of the following:

- Conduct exploratory data analysis to identify occurrence patterns in the new occurrence data.
- Compute 30- to 90-day rolling averages for the re-registration source waters and provide graphs showing occurrence patterns.
- Learn to use Graphical Information Systems (in EPA's computer lab) and use these to produce informative maps of atrazine occurrence.
- Construct mathematical models of "typical" occurrence patterns.
- Simulate sampling and measurement from modeled source waters to test the performance of different experimental designs and decision rules.
- Assess the monitoring requirements of the current Atrazine Rule.

Near the end of the service period, the intern may present findings and lessons learned to the Division.

Additional information on the re-registration of atrazine can be found on the Office of Pesticides Programs website: http://www.epa.gov/pesticides/reregistration/atrazine/
OGWDW's fact sheet on atrazine can be found at
http://www.epa.gov/safewater/contaminants/dw_contamfs/atrazine.html

Targeting and Analysis Branch

Contaminant Candidate List: Evaluating how other EPA offices prioritize Contaminants and Pollutants

EPA's Office of Ground Water and Drinking Water is seeking an intern to assist in developing a process to identify new and emerging drinking water contaminants. These contaminants should be evaluated for their potential to occur in drinking water at levels of concern. The Safe Drinking Water Act requires the EPA to publish a list of contaminants which may require National Primary Drinking Water Regulations. This list, known as the Contaminant Candidate List (CCL) is developed every five years. The CCL is the primary source of priority contaminants for evaluation by EPA's drinking water program. The Agency is currently developing a new approach to develop future CCLs using recommendations provided by the National Academy of Sciences' National Research Council and the National Drinking Water Advisory Council.

The Standards and Risk Management Division is providing an exciting opportunity for an intern to learn about the drinking water program, assist in developing a new CCL selection process that will set priorities for the drinking water program, and explore how other program offices within EPA classify or prioritize contaminants. For example the Office of Pollution Prevention and Toxics (OPPT) has developed several exposure assessment methods, databases, and predictive models to evaluate chemicals. Gaining an understanding of how these programs may be used for the CCL and utilizing all the resources available within other EPA programs is necessary to develop an efficient and comprehensive CCL process.

The interns scope of work will be in the following areas:
-Develop a report on up to 10 selected programs.
-Conduct internet and literature searches on contaminant selection, identification, or classification processes
used at EPA.
-Meet with contacts from the specific program offices to gain additional
insight into the process and how they may be useful in the CCL process.
- Attend meetings and presentations on new and emerging drinking water contaminants.
-Present findings/lessons learned to EPA staff in the Standards and Risk Management Division.

Additional information on the CCL can be found on the Office of Ground Water and Drinking Water's web site. http://www.epa.gov/safewater/ccl/cclfs.html

Standards and Risk Reduction Branch

Project: Contaminant Candidate List (CCL)

EPA periodically develops a list of chemical and microbial contaminants that are not regulated, but may pose health risk through their occurrence in drinking water. Some of these contaminants (those with sufficient health effects and drinking water occurrence information) are reviewed for possible regulation and others (those with insufficient information for regulatory determination) become priority candidates for research, monitoring, and guidance. Including candidates for regulatory determination and candidates for research, the list was named the "Contaminant Candidate List." This list is of vital importance to EPA, because it becomes the focus and driver of our future rulemaking and research efforts.

Recently the National Research Council provided its recommendations for automating the listing process so that a more complete set of contaminants is considered for listing. EPA is considering a number of approaches for doing this, including artificial neural nets, categorization and regression trees, multivariate adaptive regression splines, and logistic regression. Each of these approaches will involve the use of a training data set (a set of contaminants with "List / Don't List" decisions that are scored for occurrence and health effects attributes).

EPA's Office of Ground Water and Drinking Water seeks an intern to assist in developing the new CCL process. As a member of our CCL team, the intern will help the team to learn about the prototype classification methods and apply these methods to inform our development of the training data set. Specific activities may include some subset of the following:

- Identify commercial and other software available for prototype classification.
- Assist in obtaining, installing, and running software obtained by the CCL team.
- Assess the performance of different algorithms and learn how performance is related to different features of the training data set (number and distribution of contaminants).
- Perform diagnostic exercises to identify training data needs, strengths, and weaknesses of the competing algorithms.
- Identify unusual training data set contaminants (e.g., those that are difficult for the algorithms to correctly classify because special information influenced the decision to list or not list the contaminant) and perform sensitivity analyses to learn whether selected training set contaminants have undue influence on misclassification by the algorithms.
- Assist in training set development by monitoring discussions among team members. This will help the team understand, at least in part, how they classify contaminants.

Near the end of the service period, the intern may present findings and lessons learned in an informal Division brown-bag.

Additional information on the CCL can be found on the Office of Ground Water and Drinking Water's web site. http://www.epa.gov/safewater/ccl/cclfs.html

Targeting and Analysis Branch

Contaminant Candidate List Regulatory Determinations: Assessing Contaminant Occurrence in Drinking Water

The United States Environmental Protection Agency (US EPA) Office of Ground Water and Drinking Water (OGWDW), together with states, tribes, and its many partners, protects public health by ensuring safe drinking water and protecting ground water. OGWDW, along with EPA's ten regional drinking water programs, oversees implementation of the Safe Drinking Water Act (SDWA), which is the national law safeguarding tap water in America.

The 1996 Amendments to the SDWA directs EPA to publish a list of contaminants (referred to as the Contaminant Candidate List, or CCL) every five years to assist the Agency in setting priorities for the drinking water program. SDWA also directs EPA to select at least five contaminants from the CCL every five years and determine whether or not to regulate these contaminants with a National Primary Drinking Water Regulation (NPDWR). To make these decisions, EPA must evaluate: (1) whether the contaminants are likely to be found in drinking water supplies in the U.S. (and to what extent), and (2) whether health information suggests that the contaminant poses a risk when consumed in drinking water. In addition, EPA also explores whether treatment technologies will be available to remove these contaminants from drinking water in the event that EPA decides to regulate, and whether there are analytical methods that can detect the contaminants at an appropriate level.

OGWDW's Standards and Risk Management Division is currently undergoing its second round of regulatory determinations and is seeking an intern to assist OGWDW staff in finding pertinent occurrence-related information for this project. More specifically, the intern will help gather supplemental information (e.g.,through literature searches, etc) regarding the occurrence (and in some cases the usage) of several CCL contaminants (e.g. methyl tertiary butyl ether (MTBE), perchlorate, 1,3- dichloropropene, etc). This internship will provide an exciting opportunity to learn about the federal drinking water program and how the Agency works to fulfill the requirements of the Safe Drinking Water Act.

The intern will work in the following areas:

A. Conduct a search of the literature and internet for relevant information from states, industry, and local governments on contaminant occurrence;
B. Draft a report on their research findings;
C. Attend and participate in team meetings on these and other contaminants;
D. Work with the CCL Regulatory Determinations team on other tasks related to making a decision of whether or not to regulate contaminants on the CCL; and
E. Present their findings/lessons learned at a team meeting.

Water Security Division

The President has designated EPA as the lead federal agency for protecting drinking water and wastewater systems from terrorist or other intentional attacks. To fulfill our homeland security responsibilities, EPA has developed a robust water security program that provides the tools and training that water systems need to prevent, detect, and respond to physical disruption, contamination events, and cyber intrusions.

The Water Security Division needs interns to assist with an array of homeland security projects. The internships would involve working at the forefront of national water security issues and observing first-hand the interaction of homeland security, public health, environmental, and technological concerns and policies.

Threat Analysis Prevention and Preparedness Branch

- The intern would develop a half-day training course on biological, chemical, and radiological contaminants that terrorists could use to contaminate drinking water supplies. The course would be presented to EPA employees in each of the 10 Regions for the purpose of disseminating expertise that is presently centralized. The training would enhance knowledge and build capability in the Regions to improve their capability to manage contamination threats and incidents.

- The intern would assist with laboratory drills that are designed to evaluate the performance of laboratories in analyzing unknown chemical substances under simulated water contamination emergencies. The drills involve laboratories, local utilities, and local emergency response personnel. The intern's role would be to assist in designing and implementing the project.

- EPA has developed a Response Protocol Toolbox that prepares water systems for assessing and responding to a threat or incident. This tool was developed in close coordination with water systems and is the preeminent guide for emergency response planning. The intern would assist in designing and reviewing an electronic version of the Toolbox which would allow systems to prepare for a threat or incident using a highly interactive computer program.

- The intern would support EPA-CDC sponsored workshops and assist in formulation of follow-up projects. The purpose of the workshops is to discuss strategies that public health officials and water utilities might use to more rapidly detect both intentional and unintentional contamination of a water system, including the possible sharing of public health and utility data to forge linkages between disease outbreaks and drinking water quality.

Security Assistance Branch

- This project involves updating and maintaining various communications and outreach needs of the Water Security Division. The intern would gain valuable experience by working with other EPA offices, EPA Regions, and external stakeholders. The responsibilities of the intern would include:

  1. Review and edit water security related press materials and publications;
  2. Assist in developing standard operating procedures for communicating sensitive and classified information within the division, with other offices in EPA and other federal agencies, and with external interest groups.
  3. Facilitating conference calls with EPA Regions and stakeholders;
  4. Maintain an overview notebook on the Water Security Division's achievements and ongoing activities;
  5. Maintaining a calendar and database of conferences, workshops, and meetings related to water security.